

THE JOHNS HOPKINS UNIVERSITY
ZANVYL KREIGER SCHOOL OF ARTS AND SCIENCES
MASTER OF ARTS IN APPLIED ECONOMICS

Topics in Macroeconomics, 440.612.51
Summer 2007

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Overview: As the title suggests, the purpose of this course is to study a selection of topics that have received significant attention in recent years by macroeconomists. These topics are intended to reinforce and build upon the subjects that you covered in your core theory class. Where relevant, we will highlight policy-related applications of the material.

Upon completing the course, students will recognize the motivations for—as well as the practical relevance, strengths, and weaknesses of—a number of current topics in macroeconomic research.

Class Meetings: Unfortunately, the meeting times for the course are a little irregular; classes will be held mainly on Mondays (there are a few Wednesday meetings at the start of the term). Specifically, classes will be held from 6:00 p.m. to 8:45 p.m. on the following days:

Wednesday May 30th
Monday and Wednesday June 4th, 6th, 11th, and 13th
Monday June 18th and 25th
Monday July 2nd (midterm exam), 9th, 16th, 23rd, 30th
Monday August 6th and 13th (final exam)

I will remind everyone about upcoming class meetings at each lecture.

Grading: There will be midterm and final exams (the dates for these are given above), along with two homework assignments. Students are expected to attend both exams and complete both assignments. Each homework will count for 10 percent of your grade, the midterm will be worth 30 percent, and the final (which will be cumulative) will be worth 50 percent.

Required Readings: There is no textbook for the course; instead, required readings will take the form of lecture handouts and selected journal articles. The assigned readings are given in the course outline (below). Occasionally, you will find portions of the readings to be on the

technical side and, therefore, relatively hard going. Don't worry—I will not hold you responsible for the more technical material, and will identify in the lectures what you will be expected to gather from each assigned article.

Statement of Ethics: The strength of the university depends on academic and personal integrity. In this course, you must be honest and truthful. Ethical violations include cheating on exams, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition. Report any violations you witness to the instructor.

Course Outline: The following summarizes the topics that we will cover this term. It is subject to change (particularly if time constraints become an issue). Full citations for all readings are given at the end of the outline.

1. “New” Growth Theory

The “new” growth theory attempts to explicitly model and explain elements that are treated as exogenous in traditional growth models.

- Review of “old” growth theory (Harrod-Domar and Solow-Swan)
- Alternative models of factor accumulation
- Modelling endogenous technological change
- Modelling the endogenous choice of production technology
- Critique of new growth theory
- Empirical tests of growth models

Readings: Lucas (1988) was the paper that basically kicked off the recent literature on economic growth; it provides an excellent summary of the main issues. The paper by Romer (1990) is required reading, as is the relatively critical summary of new growth theory by Solow (1994), which we will develop and discuss further in class. The papers by Mankiw, *et al.* (1992) and Jones (1995) are also required; they examine some empirical tests of growth models.

2. The Overlapping Generations (OLG) Model

The overlapping generations model provides an alternative way to think about economic growth.

- Derivation of an overlapping generations model
- The concept of “dynamic efficiency”

Readings: None are required—several articles will be cited in lecture, but you will not be responsible for reading them (they might help to clarify any obscure points, however).

3. Some Macroeconometric Background

Modern macroeconomics is highly empirical, and many subjects cannot be discussed without some knowledge of certain key econometric concepts. Before we proceed any further, therefore, we will briefly cover three topics from time-series econometrics: vector autoregressions (VARs), unit roots and cointegration, and detrending.

Readings: The survey article on VAR models by Stock and Watson (2001) is required reading.

4. Consumption

We will focus on empirical tests of the permanent income hypothesis (or consumption-smoothing model), which should be more-or-less familiar to you from your core theory course. We will then consider several extensions to the basic PIH that are designed to address various shortcomings with the model. Specific topics we will cover include the following.

- Review of the permanent income hypothesis (PIH)
- Empirical shortcomings of the PIH
- Extensions: habit formation, liquidity constraints, precautionary and buffer-stock saving
- Hyperbolic discounting

Readings: The survey by Carroll (2001) lays out some of the key issues. The paper by Angeletos, *et al.* (2001) provides a relatively accessible introduction to the concept of hyperbolic discounting; you should read it, along with the more critical assessment of Rubenstein (2003).

5. Asset pricing

- The basic present-value identity for stock prices; first (explicit) introduction to *rational expectations* models
- Testing the present-value model
- Monetary policy and stock returns
- Modelling bond returns
- Consumption-based asset pricing models; the equity premium puzzle

Readings: You should read the papers by Campbell (1995), Campbell and Shiller (1988, 2001), and the survey article by Cochrane (1997) (don't worry about reading the section on production-based asset pricing models until we have covered the material on investment). The discussion of monetary policy and stock returns will draw on Bernanke and Kuttner (2004).

6. Investment

In the most basic model of investment, the firm sets its capital stock equal to some optimal level. What makes things interesting is when—for some reason—the firm doesn't want to immediately move all of the way to its optimal stock. One reason this can occur is that the firm might face adjustment costs for making changes to its capital; this in turn, forces the firm to plan ahead—to be *forward looking*. We will develop a model of investment under adjustment costs; this will provide a relatively sophisticated example of a forward-looking rational-expectations model.

We will also examine some implications for investment when it is *irreversible* (that is, when a firm is unable to recover much or all of the cost of an investment project after it has been put in place). Finally, we will briefly discuss production-based asset pricing models (which ties in with the earlier material on asset pricing).

Readings: There are no required readings for most of these topics: Unfortunately, most research on irreversible investment makes use of advanced mathematical techniques, so this material will be exclusively developed in the lecture notes. For the material on production-based asset pricing models, you should go back and read the relevant sections of Cochrane (1997).

7. Inflation

The study of inflation catalyzed the “rational expectations revolution” in macroeconomics in the 1970s. More recently, the need to construct “microfounded” models with nominal rigidities (which permit the modelling and analysis of monetary policy) has led to an explosion of research in recent years on rational expectations models of price determination. We will review some of the empirical and theoretical work on this topic, including:

- Some stylized facts about inflation
- Older models of inflation (the Phillips curve), the natural rate hypothesis, and the “rational expectations revolution”
- The new-Keynesian Phillips curve: theory and empirics
- Other models of pricing behavior: sticky information and “P-star” models
- Microeconomic evidence on price adjustment

Readings: The first portion of the Rudd and Whelan (2005) paper contains a short historical summary of inflation modelling. You should also read the Gali and Gertler (1999) paper, and the critical assessment of the new-Keynesian Phillips curve contained in the remainder of Rudd and Whelan (2005).

8. Modelling Monetary Policy

As noted above, the development of microfounded models with nominal rigidities has permitted the rigorous analysis of monetary policy in a rational-expectations framework. We will look at a representative sample of this research, and use the resulting framework to analyze several

important practical questions.

- A simple, fully specified “new-Keynesian” model
- Equilibrium determinacy, policy rules, and the “Taylor principle”
- What caused the “Great Inflation” of the 1970s?
- Costless disinflation and policymaker credibility
- Deflation and the “liquidity trap” in Japan

Readings: Clarida, Gali, and Gertler (1999, 2000) and Woodford (2001) develop and analyze the new-Keynesian model that we will be discussing (you will probably understand the two Clarida, *et al.* papers better if you read them *after* the relevant lecture). In addition, King (2000) provides a very useful technical reference that complements the other two papers. Orphanides (2004) gives a useful historical perspective on the Great Inflation, while Ball (1994) and Rudd and Whelan (2003) provide two different perspectives on costless disinflation in these models. Finally, Eggertsson and Woodford (2003), Krugman (1998), and Svensson (2003) discuss the liquidity trap in Japan (the Eggertsson-Woodford article is most directly relevant, but a little technical; the Krugman article provides the most useful background, and Svensson’s paper is more of a survey piece—and is also the least technical).

9. Labor Markets and Unemployment

- Classical and Keynesian models of unemployment
- Matching and search models of unemployment
- Sticky wages and employment fluctuations

Readings: There are no required readings; several papers will be referred to in class (and might help to clarify any obscure points).

Full Citations for Course Readings

Angeletos, George-Marios, David Laibson, Andrea Repetto, Jeremy Tobacman, and Stephen Weinberg (2001). "The Hyperbolic Consumption Model: Calibration, Simulation, and Empirical Evaluation." *Journal of Economic Perspectives*, 15(3), 47-68.

Ball, Laurence (1994). "Credible Disinflation with Staggered Price Setting." *American Economic Review*, 84, 282-289.

Bernanke, Ben S. and Kenneth Kuttner (2004). "What Explains the Stock Market's Reaction to Federal Reserve Policy?" Finance and Economics Discussion Series Working Paper no. 2004-16. (Available at <http://www.rsma.frb.gov/wpapers/feds/2004/200416/200416pap.pdf>.)

Campbell, John Y. (1995). "Some Lessons from the Yield Curve." *Journal of Economic Perspectives*, 9(3), 129-152.

Campbell, John Y. and Robert Shiller (1988). "The Dividend-Price Ratio and Expectations of Future Dividends and Discount Factors." *Review of Financial Studies*, 1(3), 195-228.

Campbell, John Y. and Robert Shiller (2001). "Valuation Ratios and the Long-Run Stock Market Outlook: An Update." NBER Working Paper no. 8221 (April). (Available at <http://papers.nber.org/papers/w8221>.)

Carroll, Christopher D. (2001). "A Theory of the Consumption Function, with and without Liquidity Constraints." *Journal of Economic Perspectives*, 15(3), 23-45.

Clarida, Richard, Jordi Gali, and Mark Gertler (1999). "The Science of Monetary Policy: A New Keynesian Perspective." *Journal of Economic Literature*, 37, 1661-1707.

Clarida, Richard, Jordi Gali, and Mark Gertler (2000). "Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory." *Quarterly Journal of Economics*, 115, 147-180.

Cochrane (1997). "Where is the Market Going? Uncertain Facts and Novel Theories." Federal Reserve Bank of Chicago *Economic Perspectives*, 21(6), 3-37. (Available at <http://www.chicagofed.org/publications/economicperspectives/1997/epnov97.pdf>.)

Eggertsson, Gauti B. and Michael Woodford (2003). "The Zero Bound On Interest Rates And Optimal Monetary Policy." *Brookings Papers on Economic Activity*, 1, 139-233.

Gali, Jordi, and Mark Gertler (1999). "Inflation Dynamics: A Structural Econometric Analysis." *Journal of Monetary Economics*, 44, 195-222.

Jones, Charles I. (1995). "Time Series Tests of Endogenous Growth Models." *Quarterly Journal of Economics*, 110(2), 495-525.

King, Robert G. (2000). "The New IS-LM Model: Language, Logic, and Limits." Federal Reserve Bank of Richmond *Economic Quarterly*, 86(3), 45-103. (Available at http://www.richmondfed.org/publications/economic_research/economic_quarterly/pdfs/summer2000/king.pdf.)

Krugman, Paul R. (1998). "It's Baaack: Japan's Slump and the Return of the Liquidity Trap." *Brookings Papers on Economic Activity*, 2, 137-205.

Lucas, Robert E., Jr. (1988). "On the Mechanics of Economic Development." *Journal of Monetary Economics*, 22(1), 3-42.

Mankiw, N. Gregory, David Romer, and David Weil (1992). "A Contribution to the Empirics of Economic Growth." *Quarterly Journal of Economics*, 107(2), 407-437.

Orphanides, Athanasios (2004). "Monetary Policy Rules, Macroeconomic Stability and Inflation: A View from the Trenches." *Journal of Money, Credit and Banking*, 36, 151-175.

Romer, Paul (1990). "Endogenous Technological Change." *Journal of Political Economy*, 98(5), pt. 2, S71-S102.

Rubenstein, Ariel (2003). "'Economics and Psychology'? The Case of Hyperbolic Discounting." *International Economic Review*, 44(4), 1207-1216.

Rudd, Jeremy and Karl Whelan (2003). "Inflation Targets, Credibility, and Persistence in a Simple Sticky-Price Framework." Finance and Economics Discussion Series Working Paper no. 2003-43. (Available at <http://www.federalreserve.gov/pubs/feds/2003/200343/200343abs.html>.)

Rudd, Jeremy and Karl Whelan (2005). "Modelling Inflation Dynamics: A Critical Review of Recent Research." Finance and Economics Discussion Series Working Paper no. 2005-66. (Available at <http://www.federalreserve.gov/pubs/feds/2005/200566/200566abs.html>.)

Solow (1994) "Perspectives on Growth Theory." *Journal of Economic Perspectives*, 8(1), 45-54.

Stock, James, and Mark Watson (2001). "Vector Autoregressions." *Journal of Economic Perspectives*, 15(4), 101-115.

Svensson, Lars E.O. (2003). "Escaping from a Liquidity Trap and Deflation: The Foolproof Way and Others." *Journal of Economic Perspectives*, 17(4), 145-166.

Woodford, Michael (2001). "The Taylor Rule and Optimal Monetary Policy." *American Economic Review*, 91(2), 232-237.